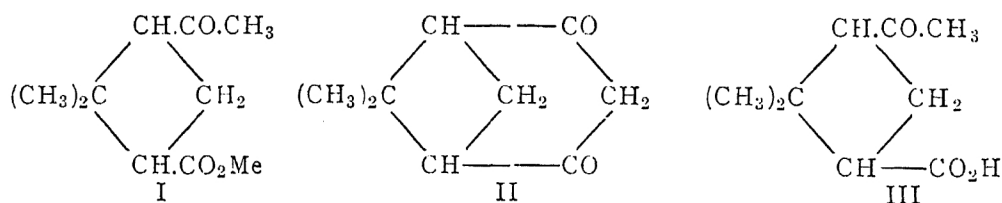


Synthesis of "Ketonopinone"

(4 : 6-Diketonopinane).

THE synthesis of pinononic acid (III) and its methyl ester (I) starting from *cis*norpinic anhydride has been reported by us.¹ The conversion of (I) into ketonopinone (II) has now been effected by means of sodium in toluene or sodium methoxide in alcohol solution. Ketonopinone (II), m.p. 104°, purified through its copper derivative (m.p. 238°) gives a violet coloration with FeCl₃, dissolves in sodium bicarbonate, decolourises alkaline permanganate and absorbs bromine in chloroform solution. The constitution was confirmed by hydrolysing it with baryta to pinononic acid (III). Reduction of this diketone to nopinone and nopinane is in progress.



It can now be observed that this constitutes a *total* synthesis of a bicyclic compound in the pinane group; Ruzicka's synthesis of pinocamphone, α - and δ -pinenes² involved the use of pinonic acid yet unsynthesised. Work on the synthesis of pinonic acid starting from norpinic acid is in progress.

Full details will shortly be published elsewhere.

P. C. GUHA.

K. GANAPATHI.

Department of Organic Chemistry,
Indian Institute of Science,
Bangalore,
November 2, 1935.

¹ *Curr. Sci.*, 1935, **3**, 484.

² *Helv. Chim. Acta.*, 1920, **3**, 756; 1924, **7**, 489.